Stewardship Plan
for the
Structures and Landmarks Framework Element

The Idaho Map
State of Idaho
Version 0.5
November 15, 2010

Based on Stewardship Plan Template Version 0.2, May 2010
Under the auspices of the Idaho Geospatial Council and
Idaho Technology Resource Management Council

Please address comments to:
Gail M. Ewart, GISP
Geospatial Information Officer
Idaho Geospatial Office
State of Idaho
gail.ewart@cio.idaho.gov
208-332-1879

TABLE OF CONTENTS

Acknowledgment

This stewardship plan is the result of a collaborative process supported by Grant/Cooperative Agreement Number G09AC00411 from the United States Geological Survey.

1. PLAN IDENTIFICATION AND BACKGROUND

1.1 Introduction

This plan describes the lifecycle management of the Structures and Landmarks Element of the Public Safety Framework Theme (which includes the additional elements of Emergency Service Zones and Critical Features). This is a part of The Idaho Map (TIM), formerly referred to as the Idaho Spatial Data Infrastructure (ISDI), managed by the Idaho Geospatial Office (IGO) under the auspices of the Idaho Geospatial Council Executive Committee and the Idaho Information Technology Resource Management Council (ITRMC). This plan describes activities, workflow, and resource requirements for the ongoing stewardship of statewide Structures and Landmarks Framework data. The approach to Framework Stewardship is described in *Framework Stewardship for the Idaho Spatial Data Infrastructure* (http://gis.idaho.gov/portal/framework/Stewardship/ISDI_FrameworkStewardship_v02.pdf). This document, combined with the Structures and Landmarks Data Exchange Standard, the Stewardship Charter, and documented standard operating procedures, establish a sound foundation for ongoing stewardship of the Structures and Landmarks Framework Element.

1.2 Data and Stewardship Summary

This plan defines stewardship practices for "structures" and "landmarks" Framework data. A *Structure* is defined by the International Building Code (IBC) as "that which is built or constructed." As defined in the Web-based Dictionary.com, a *Landmark* is "A prominent or conspicuous object on land that serves as a guide, especially to ships at sea or to travelers on a road; a distinguishing landscape feature marking a site or location." This Framework dataset contains structures and landmarks represented as point features with a standard set of attributes. Structures have a physical manifestation on the surface and normally include an entrance or access point (e.g., a building or a cell tower). Landmarks may not have an associated structure but are normally named and are important for public safety uses (e.g., roadside stands). Important parameters impacting the Structures and Landmarks Stewardship include the following:

Stewardship Class: The Structures and Landmarks Element is a Class A dataset, because it involves a large number of sources with frequent changes. Since this dataset is limited to point features, integration and update is moderately complex. A description of stewardship classes is found at [insert link when available].

Framework Steward Agency or organization: Idaho Bureau of Homeland Security, Idaho Military Division, Office of the Governor.

Name of position having primary stewardship responsibilities: GIS Manager, Bureau of Homeland Security (Framework Steward for the Structures and Landmarks Element)

Data Description: Refer to Structures and Landmarks Data Exchange Standard (see http://gis.idaho.gov/portal/framework) for detailed description of the Structures and Landmarks dataset.

Data Type: Vector

Feature Type: Point

Update Cycle: Monthly at a minimum or weekly if possible. Frequency of updates supports public safety users who require up-to-date address data for emergency dispatch and response.

1.3 Data Quality Concepts and Terms

The Federal Geographic Data Committee (FGDC) defines data quality as "an essential or distinguishing characteristic necessary for cartographic data to be fit for use." (see FGDC Content Standard for Geospatial Metadata (CSGM), www.fgdc.gov/metadata/geospatial-metadata-standards). Data quality is expressed as the degree to which a dataset conforms to the specifications established for database development. The CSGM includes the following parameters to describe and assess data quality: a) attribute accuracy, b) positional accuracy, c) logical consistency, d) completeness, and e) lineage/currentness. In the context of Framework stewardship for the Structures and Landmarks Element, quality reflects the degree to which the data complies with content, format, and "mapping rule" requirements as stated in the most current version of the Structures and Landmarks Data Exchange Standard (see http://gis.idaho.gov/portal/framework/Misc.htm), and the data preparation and submittal requirements stated in this plan and any applicable standard operating procedures (SOPs).

This plan makes reference to two related terms applied to the data preparation, acceptance, and posting process for Source Steward contributions and the resulting Structures and Landmarks dataset:

- *Quality Control* (QC) refers to the procedures and tools used during the data capture and compilation process to meet the stated level of quality.
- *Quality Assurance* (QA) encompasses procedures and tools used to independently evaluate the quality of submitted data as a step leading to the acceptance of the data submittals.

QC and QA are complementary activities designed to ensure conformance with specifications prior to acceptance and posting of the data. Using this definition, QC is the main responsibility of Source Stewards in preparing data for submittal and posting to the Structures and Landmarks dataset. QA processes are used primarily by the Framework Steward (and resources supporting the Framework Steward), for checking the quality of data submittals, communicating with Source Stewards to resolve any discrepancies, and ultimately accepting and posting the submitted data.

2. STRUCTURES AND LANDMARKS STEWARDSHIP PROGRAM DEVELOPMENT AND OPERATION

2.1 Stewardship Roles and Process

An initial dataset will be compiled from data provided by all Source Stewards, including the state's Integrated Property Records System (IPRS) and structures data from the U.S. Geological Survey (USGS). The Framework Steward will perform quality assurance (QA) checks on the data submitted by Source Stewards and will communicate with the Source Stewards to resolve any problems with submitted data. Once the initial database is in place, automated processes will harvest source data at predetermined intervals, perform horizontal integration and serve the most up-to-date version to users, while older versions will be archived and made available upon request. Structures and Landmarks Stewardship will follow the overall procedures see forth in the Framework Stewardship document, which is fairly mature but not yet in final form (see http://gis.idaho.gov/portal/framework/Stewardship/ISDI_FrameworkStewardship_v02.pdf). These procedures identify the following roles and corresponding responsibilities for different parts of the stewardship process:

- The *Idaho Geospatial Council (IGC) Executive Committee* serves as the governing body for all of ISDI initiatives, including Framework Stewardship. The IGC Executive Committee's role includes approval of stewardship documents, endorsing data standards, and promoting and facilitating data sharing. Policy decisions are made by the Idaho Technology Resource Management Council.
- The *Idaho Geospatial Office* (IGO) facilitates Framework Stewardship in general and facilitates stewardship education, tracks stewardship charters and plans, brings issues to the *Framework Leadership Team* when appropriate, and suggests modifications to the model documents.
- The *Public Safety Technical Working Group* (PSTWG) is responsible for establishing standards and initiating stewardship practices for the Structures and Landmarks Element (in addition to other elements included in the Public Safety Framework Theme). As the Framework Stewardship model is gradually implemented, the workgroups of the PSTWG will be replaced by *Steward Groups* for each element. For the time being however, the PSTWG and the subgroups assembled to address Structures and Landmarks database development and stewardship will continue its current role.
- The *Framework Leadership Team (FLT)* includes Technical Working Group (TWG) chairs and workgroup leads and is responsible for coordinating the development, integration and long-term management of Framework data. A *Framework Coordinator* (in the IGO) is a facilitator who serves as a central point of contact for stewardship issues that are not specific to a particular Framework element.
- As Framework datasets transition to stewardship, the *FLT* will function more as the *Steward Council to* facilitate resolution of inter-theme vertical issues and address stewardship topics. The overall idea is that as Framework development progresses the current workgroups will gradually be replaced by *Steward Groups,* with the leads and chairs remaining as a skeleton to address vertical issues and to provide resolution and guidance on stewardship issues and evolution.

- *Source Stewards* are the primary organizations or individuals providing data to create and update a Framework Element. Since there will be multiple Source Stewards for Structures and Landmarks data (i.e., state agencies, local governments, federal agencies), a designated *Framework Steward* is responsible for accepting data from the different *Source Stewards*, performing any needed quality assurance (QA) checks or data format translations, facilitating the capture and update of metadata, posting the data for access, and ongoing communication and coordination among *Source Stewards*.

Data consumers will be able to provide feedback to the Framework Steward about issues or errors using a Web form. The Steward Group, consisting of Framework Steward, Source Stewards and the Framework Coordinator, will meet annually or more frequently when needed. This *Stewardship Plan* will be reviewed at least every two years, or more frequently if needed.

The Framework Steward will provide ongoing communication and participate in vertical integration efforts. An overview of the stewardship process workflow is depicted in Figure 1. In this figure, start-up acquisition activities are shown in shaded boxes while data acquisition and ongoing stewardship activities described in this plan are depicted in un-shaded boxes. Structures Stewardship includes the following data acquisition and ongoing activities:

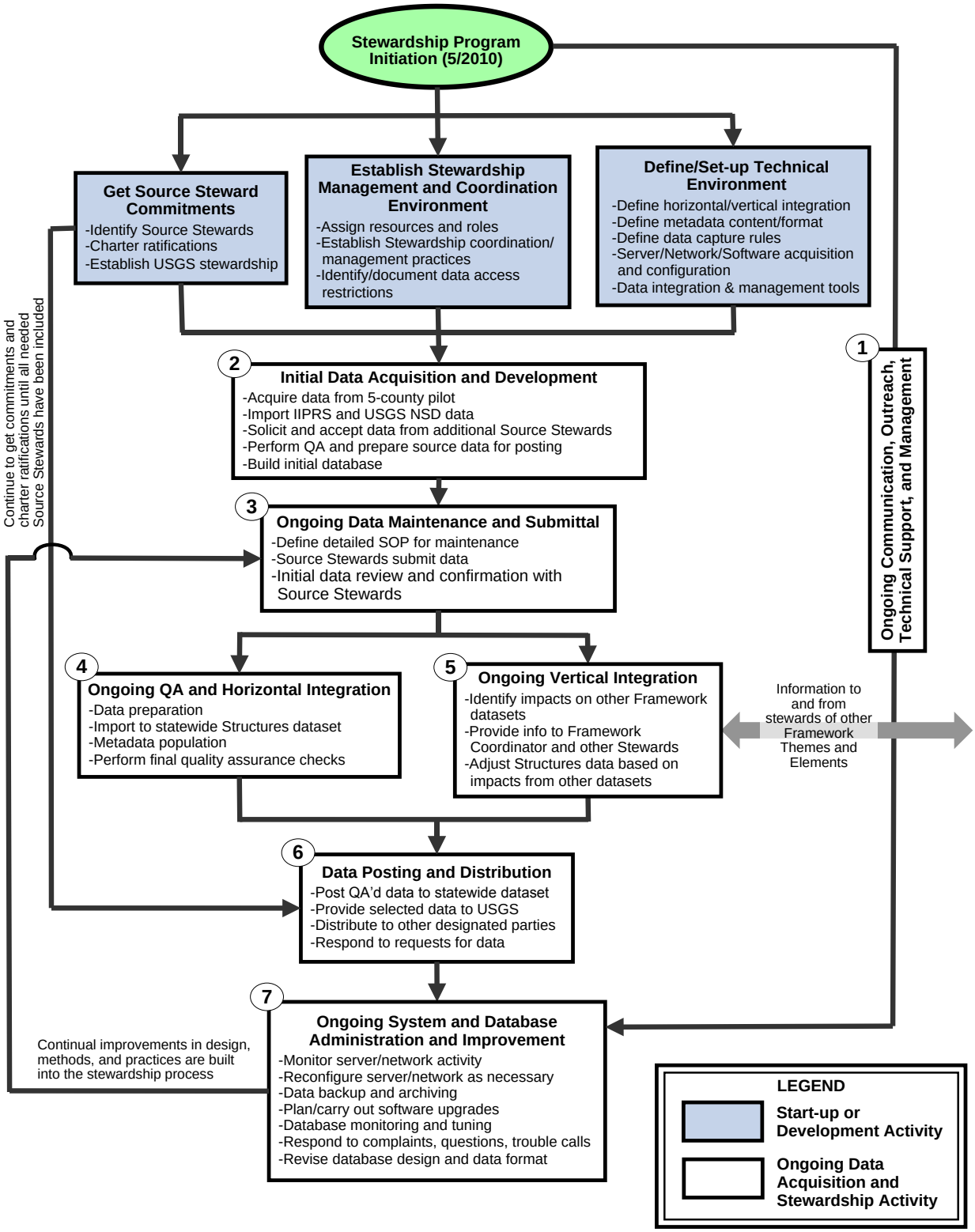
1. Ongoing Communication, Outreach, Technical Support, and Management
2. Data Acquisition and Development
3. Data Maintenance/Submittal by Source Stewards
4. Ongoing Data QA and Horizontal Integration
5. Vertical Integration
6. Data Posting and Distribution
7. System/Database Administration and Improvement

A critical start-up activity is securing Source Steward commitments and executing the Stewardship Charter. It is noted that getting commitments from all required Source Stewards (e.g., most importantly county and city governments) and complete execution of the Stewardship Charter would ideally be completed prior to launching the ongoing stewardship process. In reality, it is expected that this will be an ongoing process that is likely to continue after the stewardship process is in place. The Office of the CIO will host a server for purposes of supporting TIM Framework Stewardship. The Framework Steward will manage the data and Operations remotely. Automated tools will be transferred from INSIDE Idaho and adapted as necessary.

Appendix A includes a description of the work for each flow chart box in Figure 1.

Figure 1: Workflow for Development and Operation of Structures Stewardship

Note: Shaded boxes denote start-up and development activities and white boxes indicate ongoing stewardship activities



2.2 Data Acquisition

Data acquisition involves the initial compilation of a statewide Structures dataset using all available structures and landmarks data from all identified Source Stewards. This includes data meeting the Structures and Landmarks Data Exchange Standard (see http://gis.idaho.gov/portal/framework/Misc.htm) from cities, counties, IGO's Integrated Property Records System (IPRS) and part of the USGS's National Structures Database (NSD). The initiation of data compilation will be after the following technical and management set-up activities:

- Establishing the system infrastructure (hardware, software, networks) to manage and provide access to the Structures and Landmarks data. The initial dataset compilation will be done by the Framework Steward. This will require ArcGIS software and an internet connection to receive data.
- Assigning all roles and responsibilities for stewardship and technical support roles and management procedures. The Framework Steward is responsible for (1) receiving data; (2) making updates to the Structures and Landmarks database, (3) publishing data and (4) archiving data. INSIDE Idaho has performed most of those responsibilities to date.
- Development and deployment of tools and technical procedures to import data from Source Stewards, perform QA checks, integrate into a statewide dataset, and post for access by users. These tools and procedures will be used for initial data acquisition and ongoing data maintenance and will be described in detail in a separate Standard Operating Procedure (SOP) document. Those issues are related to data maintenance.
- Getting commitments and establishing a Charter. Enlisting Source Stewards will be an ongoing process until statewide coverage is achieved from the best sources. Preferably stewards will have signed the stewardship charter prior participation.

While the goal for data stewardship is fully automating data update, initial data acquisition will likely require a significant amount of manual intervention and quality assurance checks. The automated processes piloted at INSIDE Idaho will be transferred to the stewardship server housed at OCIO. This process may be used to test and refine automated processes for acceptance and integration of data from Source Stewards for ongoing data maintenance (Activity 3).

Several issues and challenges need to be addressed in order to get active participation from all Source Stewards. These apply to initial data acquisition, as well as to ongoing maintenance:

- Not all local governments currently have comprehensive, or any, Structures and Landmarks data to provide in support of the stewardship process.
- Even when a county government has an active GIS program and is compiling Structures and Landmarks data for unincorporated areas, it frequently does not maintain address point data for all cities in the county.
- Source Stewards with Structures and Landmarks data to contribute may use a different data model and format from the established data exchange standard.
- Some jurisdictions may have Structures and Landmarks data and not be willing to share it.

This *Structures and Landmarks Stewardship Plan* encompasses all of the point feature types that are defined in the Structures and Landmarks Data Exchange Standard (see http://gis.idaho.gov/portal/framework), and it is the intent to build a statewide dataset that is comprehensive. Since not all jurisdictions currently have comprehensive Structures and Landmarks data, a subset of Structures, referred to as "Structures Priority Data" (SPD), is sufficient for inclusion. SPD features include:

- Hospitals and Medical Facilities
- Schools
- Houses of Worship
- Police Stations/Law Enforcement Offices
- Fire Stations and Emergency Medical Stations
- Emergency Operations Centers (EOC)
- Jails/Prisons

In the process of identifying and getting commitments from Source Stewards, the status of their Structures and Landmarks data and their ability to deliver comprehensive structures data or only the SPD subset will be declared and a compilation included as an attachment to this Stewardship Plan.

2.3 Data Maintenance

Data maintenance encompasses all ongoing update, integration, and data posting for distribution and access for the statewide Structures and Landmarks dataset. Source Stewards submit their data (according to the process described in the accompanying Standard Operating Procedure) at predetermined intervals so that the data can be harvested automatically.

Sources will identify how they intend to submit data. The preferred method is posting at a pre-agreed URL for automated data upload. If there are technical limitations preventing Web-based data submittals, options include establishment of an FTP transfer or mailing of a CD or DVD to the Framework Steward. To the extent practicable, submittals will adhere to the format explained in the Structures and Landmarks Data Exchange Standard (see http://gis.idaho.gov/portal/framework). The entire dataset (including both previously captured and new points) will be submitted each time. In the future, Stewards may prefer that Structures update occur through an interactive Web-based application. Source Stewards will provide metadata with each submittal in accordance with established standards, and this metadata will be compiled and included in the statewide dataset.

The submitted data will undergo basic quality assurance (QA) checks, performed by the Framework Steward, to verify and identify any problems with the prescribed data content and format (adherence to the Structures and Landmarks Data Exchange Standard). The main steps in the data acceptance, QA, and data posting to the statewide Framework data element are described below:

1. Data submittal is logged: An automated log (Excel or Access-based) is maintained by the Framework Steward. This log is a tracking tool that identifies dates of receipt and major steps in the QA checking and acceptance process.

2. Initial processing is performed: This includes an identification of file formats, initial processing (e.g., unzipping submitted files), and any file re-formatting necessary to proceed with QA checks. This step also identifies the data included (minimum vs optional data).

4. Metadata check and processing: Checks are performed for the inclusion of required metadata, and if necessary, processing is performed for the creation of metadata (XML file).

5. Check for duplicates: An automated check is performed to identify duplicate points or duplicate entries in attribute tables.

6. Check for attribute accuracy: An automated check is performed to identify possible attribute errors, including null (blank) fields where an entry is required and entries outside defined attribute domains.

7. Perform a spatial domain check: Check location of structure points that fall outside of a Source Steward jurisdiction to identify possible errors in structure location. This check may be based on county extent or a stored map extent (minimum and maximum x, y coordinates). Check should take into account allowable cases where a Source Steward may submit structure points on behalf of jurisdictions outside its own geographic area.

8. Post to SDE Feature Class: After the previous checks have been completed and any errors or questions are resolved with the Source Stewards, data is posted to the statewide SDE Feature Class.

The Framework Steward will contact the Source Steward to resolve any issues uncovered while processing the submitted data. When data submittals from Source Stewards do not fully adhere to the minimal data standards (see http://gis.idaho.gov/portal/framework) or submittal requirements, the Framework Steward will address the issue(s) on a case-by-case basis. The Framework Steward may decide to: a) decline the submittal and work with the Source Steward to resolve problems, b) accept and process the data with appropriate metadata entries, or c) accept the data and carry out modifications to comply with standards.

Having resolved identified data problems and out-of-compliance issues, the Framework Steward will perform the required processes to update the existing database with data received from the Source Stewards. Since only the Framework Steward will be editing the Framework Structures and Landmarks dataset initially, no versioning issues are anticipated at this time. After a round of updates, the resulting dataset will be refreshed at consistent URLs for download and to access Web map services.

2.4 Communication

Structures and Landmarks Stewardship is dependent upon regular, documented communication between organizations and people with Stewardship roles. Communication activities, most of which are in Activities #1 and #2 (see Figure 1), include: a) status briefings with the GIO, IGC-EC or senior management personnel, b) presentations and briefings with charter signatories of Source Steward organizations to get charter signatures, c) participation and presentations for the Public Safety Technical Working Group, d) technical support for Source Stewards and

communications to resolve questions about submitted data, e) reports to users on stewardship activities and posted data updates, f) general promotion of stewardship, and g) technical documentation and communication.

The main communication activities are summarized below titled according to the sources and receivers of information. This makes reference to established Stewardship roles explained above in Section 2.1.

Steward Group to IGC Executive Committee and IGO: The Steward Group (or Structures Workgroup prior to formal Steward Group formation) provides presentations and reports on the status of the Structures and Landmarks Stewardship to the FLT, IGO and IGC Executive Committee and gets approvals when necessary.

Framework Steward to Public Safety Technical Working Group (PSTWG): The Framework Steward provides updates on Structures and Landmarks Framework to the PSTWG. Once Structures and Landmarks Stewardship is in place, it will not be necessary to hold further Structures workgroup meetings. When all elements of the Public Safety theme are in stewardship, this communication will be to the FLT.

Framework Steward to Source Stewards: The Framework Steward provides guidance to Source Stewards (and potential Source Stewards) for initial establishment of stewardship, ongoing technical support during data maintenance phase, as well as overall encouragement for their participation. The Framework Steward, with support and participation of the IGC-EC, IGO, and PSTWG, will actively promote Structures and Landmarks Stewardship and support recruitment of Source Stewards until all geographic areas of Idaho are included from the best sources.

Steward Group to User Community: The Steward Group carries out ongoing education and promotion on the availability, applications and business benefits of Structures and Landmarks data to the broad community of data users to encourage data use and to encourage support and awareness of Structures and Landmarks data. In this context, "user community" encompasses all active and potential users in the public and private sector, non-profit and professional associations, and the general public.

Framework Steward to User Community: The Framework Steward will inform users of updates to the Structures and Landmarks dataset. This information will be disseminated in a variety of forms such as listserv postings, email, and announcements via Web). The Framework Steward, in coordination with the IGO, will accept and respond to data requests from the user community. The Framework Steward will also respond to and take action on comments and suggestions submitted by the user community (see below).

User Community to Framework Steward: The user community will provide input to the Framework Steward on data quality, access problems, data corrections, data needs, suggestions for changes, and other Structures and Landmarks data issues. This input will be submitted using a Web-based form or other mechanism provided by the Framework Steward.

Framework Steward to Framework Leadership Team (FLT): The Structures and Landmarks Framework Steward will meet regularly with the FLT and provide information and

recommendations to resolve common stewardship issues and vertical integration issues among themes.

2.5 Horizontal Integration

Horizontal Integration (see Activity #4) refers to the overall approach to integrating data pieces from different Source Stewards, the timing and frequency of integration, the quality assurance/ quality control (QA/QC) measures that will be applied, how versioning will be managed, and how the metadata will be updated. After receiving information from Source Stewards, the Framework Steward updates and integrates the data into one seamless statewide dataset. Two types of problems become evident in the process of integrating data:

- Gaps or overlaps of data. These errors will be referred back to the appropriate Source Stewards to work out solutions by the Framework Steward.
- Duplicative features occurring when more than one source submits data for the same feature. The Steward Group will develop business rules to determine the authoritative source.

Business rules will also address resolving differences in data formatting, capturing and conveying metadata relating to update dates, and capturing and conveying metadata for completeness.

As mentioned in 2.3, no versioning issues are anticipated.

2.6 Vertical Integration

Vertical Integration (see Activity #5) refers to required spatial registration with this element or harmonization of its attributes with other Framework Themes and Elements. The Framework Coordinator, with the assistance of members of the Steward Group, will determine what type of vertical integration exists with other elements in the Public Safety Theme, as well as any other Framework element included in TIM. A matrix is being developed to identify vertical integration relationships among Framework Themes and Elements (see insert URL when available). This matrix will be used as a basis for examining specific vertical integration requirements for Structures and Landmarks data.

Once vertical relationships have been identified, the Framework Steward will work with the Framework Coordinator, other Framework Stewards and the Framework Leadership Team to identify and resolve vertical integration issues.

2.7 Data Posting and Distribution

As identified in Activity #6, updated Structures and Landmarks data, including metadata, will be posted in a Web-accessible form. Selected structure types will be provided to the USGS in response to established terms for support of the USGS National Structures Database (NSD) initiative.

The Office of the CIO, where the data is hosted, will monitor server activity and performance, security, and other administrative system monitoring activities. The Framework Steward will

manage user access and account status and, as necessary, manage user authentication for restricting access.

INSIDE Idaho will provide guidance and support to maximize data discovery and access.

2.8 Access Restrictions

Access restrictions may vary among Source Stewards. The Framework Steward will track and honor those restrictions. The Steward Group will identify concerns as they evolve and work with Source Stewards and others to address concerns and make access adjustments, as appropriate.

2.9 Improvements

Incremental improvements in processes and tools will be an ongoing activity (Activity #7). Server improvements include, but are not limited to: planning and reconfiguring server settings (user accounts, security and access policies, network access, and other technical parameters), software upgrades and associated reconfiguration of software settings.

System administration work includes monitoring of database transactions, Web access, and overall server and network performance. As necessary, system and network tuning, upgrades, and reconfiguration will be carried out to improve performance, usability, and security.

Database design and format will be revised as needed. Any changes affecting the Structures and Landmarks Data Exchange Standard will be incorporated into the next update of the standard.

2.10 Evaluation

The Framework Steward will lead the Steward Group in the periodic review and revision of this Stewardship Plan and related processes *at least every two years or more frequently if needed.* Ongoing monitoring of the stewardship process will drive revisions to procedures, roles and practices as needed to improve the stewardship program. The evaluation will include examining Structures and landmarks in light of changing user needs, such as identifying data model changes and readiness to move to structures polygon footprints.

2.11 Data Backup

The Idaho Office of the CIO (OCIO) has direct responsibility for server administration and will perform routine data back-ups in accordance with established policies. Automated procedures will be established to perform periodic full backups, incremental backups, and off-site storage of backups.

2.12 Archive

Based on a schedule specified by the Steward Group, the Framework Steward will generate a snapshot of Structures and Landmarks data and store it on stable media (tape or DVD). Archived data will be available through INSIDE Idaho by request or by archive search. The frequency and retention schedule may need adjustment after a data retention policy is established.

2.13 Data Compilation and Mapping Rules

Data capture and formatting will adhere to the Structures and Landmarks Data Exchange Standard (http://gis.idaho.gov/portal/framework/Misc.htm). "How to" details are spelled out in the Standard Operating Procedures (SOPs) associated with this Plan. Important business rules guiding the compilation and update of Structures and Landmarks data are set forth below:

- Point Placement: The default rule is for placement of a point at the entrance of or primary access location to a structure. However, different placement conventions are acceptable and must be described in the metadata.
- If duplicative points are submitted by different Source Stewards and this submitted data varies in point placement or accuracy, preference will be given to data submitted by the Source Steward with jurisdictional authority for the area in which the Structure is located.
- Horizontal Accuracy: Points should be located with a horizontal error of no more than 40 feet from the true location of the Structure (as determined through field data collection with survey grade GPS). There is no requirement for field verification of accuracy but Source Stewards will use data capture techniques and sources that ensure this or higher level of accuracy. Metadata should identify sources and accuracy levels of submitted data.
- Attributes: Attributes captured with submitted data should adhere to standards (recommended, minimal, and optional) as stated in the Structures and Landmarks Data Exchange Standard (Section 3). Data capture procedures should be put in place to achieve attribute accuracy (correctness of populated attribute values) of 99% (i.e., 1 error allowed for every 100 attribute entries).

3. STRUCTURES AND LANDMARKS STEWARDSHIP MANAGEMENT AND RESOURCE REQUIREMENTS

3.1 Responsibilities for Structures and Landmarks Framework Development and Operation Tasks

Appendix B relates the various stewardship roles and details the responsibilities for all Structures and Landmarks Stewardship activities. This is presented in the form of a matrix that characterizes roles into three categories:

- Lead Role (L): Overall responsibility for accomplishing or carrying out the activity including detailed work planning, assembling and overseeing work teams, work monitoring and quality checks, etc.
- Participant/Support (P): Any involvement in carrying out the activity, providing technical or management assistance, or system resources to support the work
- Oversight/Approval (O): Designated role in oversight and formal approval for Stewardship activities.

3.2 Resource Needs and Cost Projections

Projected resource requirements for management and operation of Structures and Landmarks Stewardship include the following staffing and system resources:

- (1) Mid-range server with necessary database and GIS software for hosting data. This server and software has been procured and is installed on the state network (inside the firewall). OCIO will assume duties for standard server and network monitoring and administration activities.
- One GIS Analyst (for approximately 2/3 FTE) with GIS software, data management, QC, and technical management.
- GIS management and oversight for approximately 10 hours per month to be provided from existing personnel in the designated Framework Steward organization (Bureau of Homeland Security).

APPENDIX A: DESCRIPTION OF STRUCTURES AND LANDMARKS STEWARDSHIP ACTIVITIES

Table A-1: Explanation of Structures and Landmarks Stewardship Activities

(Activity numbers correspond to boxes of Figure 1)

	Activity	Description
Start-up and Development Activities:		
2	**SOURCE STEWARD COMMITMENTS**	Includes identification of Source Stewards and Charter ratification. This will be an ongoing activity until all necessary Source Stewards are included. Also includes revisions to the Charter and establishing USGS stewardship relationship.
2.1	Identify Source Stewards	Identify potential source stewards--organizations that are compiling/updating Structures and Landmarks and address point data and contact them to solicit Stewardship participation.
2.2	Charter signatures	Get commitments for the Source Steward organizations and get charter signatures by appropriate Source Stewards organization authorities.
2.3	Establish USGS stewardship	Includes discussions to reach consensus on responsibilities and approach for Stewardship support for the "National Structures Database" (NSD) and documenting terms for NSD stewardship support.
2.4	Renew Charter as necessary	If necessary, Charter will be revised and distributed to Source Stewards
3	**STEWARDSHIP MANAGEMENT AND COORDINATION ENVIRONMENT**	All tasks relating to the assignment of management, staff resources and management environment for Stewardship. Includes defining management and oversight roles and specific management/coordination practices (adhering to IGC-EC accepted practices).
3.1	Assign resources	Assign and allocate funding support for Framework Stewardship. Includes funding allocation and assignment of management and staff time for oversight, coordination, tech. operations. Includes roles of Framework Coordinator, Framework Steward, and others.
3.2	Establish Stewardship coordination/management practices	Reach consensus and document the detailed standard operating procedures and any needed formal policies for stewardship management and coordination.
3.3	Identify and document data access restrictions	Gather information from Source Stewards and evaluate general policies and legal issues impacting restrictions on data access and distribution. Includes consensus/agreements with individual Source Stewards to comply with their policies.
4	**ESTABLISHMENT OF TECHNICAL ENVIRONMENT**	Includes all system and database design, acquisition and set-up of systems, application/tool development, and documentation of technical process for Stewardship
4.1	Define horizontal/vertical integration	Preparation of SOPs and technical activities for Structures and Landmarks data maintenance and vertical integration impacts on other Framework data
4.2	Finalize data exchange standard	Completion of the current draft Structures and Landmarks Data Exchange Standard.
4.3	Define metadata content and format	Define required metadata fields (FGDC compliant) and the source for metadata population
4.4	Define data capture rules	As part of SOP, define specific mapping rules for Structures and Landmarks features (point placement, multiple points per structure, multiple land uses, etc.) to guide database development and Source Steward Submittals.
4.5	Server/Network/Software acquisition and configuration	Acquire and install necessary server and software for Structures and Landmarks Stewardship, perform necessary server and network configuration, set-up accounts and security
4.6	Develop, install, refine data integration & management tools	Design, develop, install and test specific tools and applications (e.g., ETL, QA) to process data from Source Stewards and post to statewide Structures and Landmarks dataset. Also develop tools for user input on data quality.
Data Acquisition and Ongoing Stewardship Activities		
1	**COMMUNICATION, OUTREACH, AND TECHNICAL SUPPORT**	Includes all communication and outreach with data stewards, users, and management personnel. This includes initial communications during establishment of the stewardship program, ongoing communications/promotion, and technical support for Source Stewards.
1.1	IGC/IGO briefings and communication	Provide required presentations and reporting to the IGO, IGC, and the IGC Executive Committee to provide information on status and to get approvals as necessary.

Table A-1: Explanation of Structures and Landmarks Stewardship Activities (continued)

(Activity numbers correspond to boxes of Figure 1)

	Activity	Description
Data Acquisition and Ongoing Stewardship Activities (cont.)		
1.2	PSTWG meetings and communications	Continue to participate in PSTWG meetings and involve PSTWG leads in resolving intra-theme vertical integration issues. As indicated in Section 2.1, as the stewardship process matures, the Structures and Landmarks workgroup of the PSTWG will be replaced by a *Steward Group*.
1.3	Technical briefings with and support for Source Stewards	Provide guidance to Source Stewards (and potential Source Stewards) for initial establishment of stewardship practices and provide ongoing technical support after data maintenance and submittal is in place.
1.4	Promotion/education for data users	Ongoing education and promotion on the availability, applications, and the business benefits of Structures and Landmarks data to the broad community of data users. This includes preparation of promotional materials, presentation at events, workshops, etc.
1.5	Inform users of data updates	As updates to the Structures and Landmarks dataset are made, information will be distributed (via email and Web site posting) to let all users know of changes and data updates.
2	**INITIAL DATA ACQUISITION AND DEVELOPMENT**	All steps associated with initial building of statewide Structures and Landmarks dataset through contributions of data from as many Source Stewards who are in a position to contribute.
2.1	Solicit and accept data from Source Stewards	Formally solicit data from identified source stewards, provide them with guidance on submittal format, and accept data for inclusion in the initial Structures and Landmarks dataset.
2.2	Perform QA and prepare source data for posting	Carry out initial quality assurance (following documentation prepared in 4.1) and work with Source Stewards if there are data problems. Carry out necessary ETL and data conditioning prior to posting to statewide Structures and Landmarks database.
2.3	Build initial database	Using data prepared in previous step, build initial statewide database.
3	**ONGOING DATA MAINTENANCE AND SUBMITTAL**	Define procedures, put in place, and manage ongoing operations for Source Steward submittals of data.
3.1	Define detailed SOP for maintenance	Document and provide Source Stewards with detailed instructions on the format, process, timing, etc. for submittal of Structures and Landmarks data.
3.2	Source Stewards submit data	Source stewards submit data according to the process and format defined in 6.1.
3.3	Initial data review and confirmation with Source Stewards	After each Source Steward submittal, data undergoes basic QC review and confirmation that it complies with agreed format and content. If problems are identified in this review, Source Steward is contacted and problems are resolved.
4	**ONGOING QA AND HORIZONTAL INTEGRATION**	Includes all activities for maintenance of the statewide Structures and Landmarks database following submittal and acceptance of data from Source Stewards (Work Activity #6)
4.1	Data preparation	After Source Steward data acceptance, perform any necessary data reformatting, translation, or other preparation for import to Structures and Landmarks database
4.2	Import to statewide Structures and Landmarks dataset	Using ETL and QC tools developed in 4.6, import Source Steward data into working database (Statewide database positioned for maintenance, not user access) and perform final QC and fixes
4.3	Metadata population	Enter all required metadata (using automated import tools where possible) in compliance with standards defined in 4.3.
4.4	Perform final quality assurance	Perform final quality assurance based on process defined in Work Activity #4 and tools developed in 4.6.
5	**ONGOING VERTICAL INTEGRATION**	Includes specific identification of impacts on other Framework datasets (based on technical documentation prepared in 4.1) for each Source Steward submittal and inform designated stewards of these other datasets.
5.1	Identify impacts on other Framework datasets	The Framework Coordinator will play a lead role in identifying potential vertical integration impacts. Information and an SOP provided by the Framework Coordinator with guide a specific identification will be made.
5.2	Work with Framework Coordinator and other Framework Stewards	Communicate with Framework Coordinator and other Framework Stewards to make database revisions based on the identification in 8.2 and the SOP for vertical integration (from the IGO).

Table A-1: Explanation of Structures and Landmarks Stewardship Activities (continued)

(Activity numbers correspond to boxes of Figure 1)

	Activity	Description
Data Acquisition and Ongoing Stewardship Activities (cont.)		
5.3	Structures and Landmarks data adjustment based on actions on other Framework themes	Accept input from stewards responsible for other Framework Themes and Elements and make appropriate adjustments to Structures and Landmarks data.
6	**DATA POSTING, DISTRIBUTION, AND FEEDBACK**	Full posting of updated data to the Web-accessible database and distribution to specific parties after all vertical integration steps have been completed.
6.1	Post data to statewide dataset	Posting of newly updated data (from Source Stewards) and associated metadata to a Web-based server environment.
6.2	Provide selected data to USGS	Based on terms of agreement with USGS for National Structures Database Stewardship distributed updated data.
6.3	Distribute data to other parties on a distribution list	Distribute data updates to other parties/organizations that are identified for regular distribution.
6.4	Respond to special data requests	Accept and respond to ongoing requests for data
6.5	Gather and act on feedback from data users	Using a Web-based or other mechanism, gather input from data users on data quality and corrections. Act on this input by making appropriate revisions to the Structures and Landmarks database.
7	**ONGOING SYSTEM & DATABASE ADMINISTRATION AND IMPROVEMENT**	Includes all ongoing server, software, database administration, and other technical support activities for the Structures and Landmarks database, data and Web server administration, network connections, and software.
7.1	Monitor server/network activity	With appropriate software monitor server activity and performance, user access and account status, security, and other technical system monitoring activities.
7.2	Reconfigure server/network as necessary	As necessary, plan and undertake reconfiguration of server settings, user accounts, security and access policies, network access, and other technical parameters.
7.3	Data backup	Perform regular database back-up and storage in accordance with OCIO backup policies.
7.4	Plan and carry out software upgrades	Plan and install software upgrades and associated reconfiguration of software settings, user accounts, and database.
7.5	Database monitoring and tuning	Monitor database transactions and performance and any complaints from technicians and users. Make appropriate tuning for increase in performance or ease of access.
7.6	Revise database design and data format as needed	As necessary (presumable only infrequently) make changes to the database design and/or data capture rules (originally document in Work Activity #4).
7.7	Track and respond to complaints and trouble calls	System administration personnel will use established “helpdesk” procedures and tools to accept and track questions, complaints, trouble calls from users.
7.8	Archive older versions of database	Older versions of the database will be copied, stored on stable media, and retained for a period of time specified in database retention policies.
7.9	Revisit/Revise Stewardship Plan and processes	Ongoing monitoring of the stewardship process will drive revisions to procedures, roles, and practices as needed to improve the stewardship program

APPENDIX B: ROLES AND RESPONSIBILITIES MATRIX

		Responsibilities (L=Lead Role, P=Participant/Support, O=Oversight/Approval)									
	Activity	Idaho Geospatial Council (1)	IGO/Framework Coordinator (2)	Framework Steward (BHS)	PSTWG/Steward Group (3)	Other Framework Steward Groups	OCIO/IGO Technical Support(4)	INSDIE Idaho	Source Steward Data Providers	Source Steward Charter Authority	Consultant
1	**COMMUNICATION, OUTREACH, TECHNICAL SUPPORT, AND MANAGEMENT**										
1.1	IGC/IGO briefings and communication	**O**	**L**	**L**	**P**		**P**			**P**	
1.2	PSTWG meetings and communications	**O**	**P**	**P**	**L**		**P**				
1.3	Technical briefings with and support for Source Stewards		**L**	**L**	**P**		**P**		**P**		
1.4	Promotion/education for data users	**P**	**L**		**L**		**P**		**P**		
1.5	Inform users of data updates			**P**			**L**				
2	**INITIAL DATA ACQUISITION AND DEVELOPMENT**										
2.1	Solicit and accept data from Source Stewards	**O**	**L**	**L**	**P**		**P**		**P**		
2.2	QC and prepare source data	**O**	**L**	**L**	**P**		**P**	**P**	**P**		
2.3	Build initial database	**O**	**L**	**L**	**P**		**P**	**P**	**P**		
3	**ONGOING DATA MAINTENANCE AND SUBMITTAL**										
3.1	Define detailed SOP for maintenance		**O**	**L**	**P**		**P**		**P**		**P**
3.2	Source Stewards submit data		**O**	**P**	**O**		**P**		**L**	**O**	
3.3	Initial data review/confirmation with Source Stewards			**L**	**O**		**P**		**P**		
4	**ONGOING QA AND HORIZONTAL INTEGRATION**										
4.1	Data preparation		**P**	**L**	**O**		**P**				**P**
4.2	Import to statewide Structures and Landmarks dataset		**P**	**L**	**O**		**P**				
4.3	Metadata population		**P**	**L**	**O**		**P**				
4.4	Perform final quality assurance		**O**	**L**	**O**		**P**				
5	**ONGOING VERTICAL INTEGRATION**										
5.1	Identify impacts on other Framework datasets		**L**	**P**	**O**						
5.2	Work with Framework Coordinator and other Stewards		**O**	**L**	**P**	**P**	**P**		**P**		
5.3	Data adjustment based on other Framework themes		**O**	**L**	**P**	**P**	**P**		**P**		
6	**DATA POSTING, DISTRIBUTION, AND FEEDBACK**										
6.1	Post data to statewide dataset		**O**	**L**			**L**				
6.2	Provide selected data to USGS		**L**	**P**	**P**		**P**				
6.3	Distribute data to other parties on a distribution list		**O**	**P**	**L**		**L**				
6.4	Respond to special data requests		**O**	**L**	**L**		**P**				
6.5	Gather and act on feedback from data users	**O**	**O**	**L**	**P**		**L**		**P**		
7	**ONGOING SYSTEM & DATABASE ADMINISTRATION AND IMPROVEMENT**										
7.1	Monitor server/network activity			**P**	**O**		**L**				
7.2	Reconfigure server/network as necessary		**O**	**O**	**O**		**L**				
7.3	Data backup		**O**	**O**	**O**		**L**				
7.4	Plan and carry out software upgrades		**O**	**O**	**O**		**L**				
7.5	Database monitoring and tuning		**O**	**O**	**O**		**L**				
7.6	Revise database design and data format as needed		**O**	**L**	**P**		**P**	**P**	**P**		
7.7	Track and respond to complaints and trouble calls		**O**	**P**			**L**				
7.8	Archive older versions of database			**P**		**L**	**L**		**L**		
7.9	Revisit/Revise Stewardship Plan and processes	**O**	**O**	**P**	**L**	**P**					

(1) Includes the Idaho Geospatial Council (IGC) and the IGC Executive Committee.

(2) Includes the GIO and IGO staff members.

(3) The Steward Group, which consists of the Framework Steward, Source Stewards and Framework Coordinator will, in the future, assume responsibilities for stewardship oversight and coordination. This role is now being played by the Public Safety Technical Working Group (PSTWG).

(4) Direct server and system management will be the responsibility of the Idaho OCIO and IGO. The Framework Steward, Bureau of Homeland Security, will perform certain remote database administration activities.